REPORT FOR POSTGRADUATE DIPLOMA 1982/83

JILL PECK

INTRODUCTION

Because of the nature of the projects I have undertaken in my postgraduate program it has been necessary for me to write this report in two sections:

A. Glass Casting Experiment for Sculpture

B. Sculptures Completed

However it has not been possible for me to separate all of my activities or thoughts neatly into these two categories and I have therefore included particular matters at the most appropriate point in the writing, giving cross references where possible.

Section A describes the development of the project undertaken. Section B describes my work approach and attitudes, and the sources for my sculpture as well as particulars of the works.

It is perhaps important to add that I see this series of sculptures continuing beyond this postgraduate year with at least four or five additional sculptures to come.

A. GLASS CASTING EXPERIMENT FOR SCULPTURE

Introduction

I have found that a time-consuming part of the effort in attempting to work with a new material like glass which I wasn't able to foresee is collecting information, organising equipment and planning a rational approach from a basis of fragmented and often contradictory details.

In approaching such a project as glass casting with a highly technical and largely unknown content, I considered it important to keep in mind the possibility of the failure of the experiment and to take account of the implications of that on the development of the other, major sculptural elements.

The thoughts to which I attached the most importance in this exercise of glass casting were my belief in its visual potential, combined with a strong interest in using materials for sculpture which are linked in form but separated in context. I recognised, at the same time, that even if the technical problems of glass casting could be resolved, the reality of it as a material transformed into form might be visually disappointing. An example of this is imagining a form in a particular material; however, on completion of the work, the visual qualities of the form prove to be unsuitable for the context in which it had been originally imagined.

The time-scale for this experiment in glass casting was seen as having a proportionate connection to the development of the other sculptural elements on which I was working. I wished to keep a balance between the sculptural experience of making new works and the effort towards the development of new materials; I saw this as important for me to maintain a perspective on the development of my work as a whole.

Background to Glass Casting Experiment

My interest in using glass as a material for sculpture began with my memories of an area of scientific research which had become visually fascinating to me through casual visits to a mycology laboratory. Here, fungi spores were developed in sterilised glass tubes for extraction and synthesis of compounds. Years later these images were resurrected and reinforced by the recent stimulus of large fungi species I had found in the Mt Stromlo pine forest. They grew under certain climatic conditions on the tops of tree stumps and amonst the rotting mulch in the earth.

In 1980 I made the first sculpture from this imagery called Fungi Form which was part of a series of seven sculptures entitled Shapes from a Landscape. These were exhibited at The First Australian Sculpture Triennial, Melbourne, February, 1981.

During the winter months of 1981, I spent several hours daily walking in this same area of the Mt Stromlo forest. The fascination which grew during this period for the forms and gestures of fence posts on the small farms within the pine-plantation boundaries led me to further develop the theme of fungi forms as possible extensions of form for the fence posts. The work that resulted, intended as an environmental installation, was planned and completed for the 8th Mildura Sculpture Triennium, April, 1982.

Development of the Mildura Sculpture

In choosing a material for developing these fungi forms, my experience of seeing spores through glass became important. I decided that if I could now cast glass forms of abstract fungi shapes, drill sections and establish in agar solution spores which would have a limited life, then the environmental nature of the work could be extended. This casting would considerably extend my experience of foundry techniques. I thought that plain coloured, light-reflecting glass forms could potentially create visual ambiguity with the rotting fence posts I proposed to use for this sculpture.

The ideas I had for the Mildura work led me to find out what the technical processes might be for casting glass.

Consultations with Other Institutions

An exchange of information with the Sydney College of the Arts Glass Workshop was arranged after initial enquiries to the Crafts Council of the ACT. It was agreed that the Canberra School of Art Sculpture Workshop would develop ceramic shell moulds for the casting process and the Sydney College of the Arts Glass Workshop would cast the glass.

During the early stages of the exchange, it was established that the two ceramic shell moulds of fungi forms which I had prepared were too large for glass casting technically at that particular time in this country. Substitute moulds were made, dewaxed and taken to Sydney for the casting process.

The type of glass used for this experiment was broken, very green, windscreen glass. This was fed into the mould from a terracotta pot supported on a metal-rod frame above the mould. Four days were allowed for this casting project in Sydney. This proved to be insufficient time for the correct annealing of the glass. Additionally, removing the ceramic shell mould from the cast glass form proved to be extremely difficult and sandblasting the mould away from the glass form caused it to break. The ceramic shell moulds were, therefore, too strong and binding to be suitable for further casting of glass.

Co-operation with Industry

Shortly after this exchange of information, contact with Crown Corning was established. Crown Corning agreed to supply free to the School five tonnes of glass cullet (soda-glass, low temperature, re-cycled glass) for experimentation. Their Glass Department also agreed to provide information on the correct annealing times for particular sculptural forms if measurements of moulds were sent to them together with information on the type of kiln equipment to be used.

Because of the exchange project mentioned, together with this assistance from Crown Corning Limited and the interest I had in the visual potential of cast glass, it seemed feasible to experiment with glass casting to be integrated into a sculpture project in a postgraduate year.

WORK DEVELOPMENT IN THE POSTGRADUATE YEAR

The first stage of my postgraduate year was taken up with the casting of fungi forms for my commitment to a sculpture for the

Mildura Triennial until the exhibition opened in April 1982 (see p.3 above).

Because it was not possible to cast these forms in glass (see p. 6 below for discussion of the glass casting experiment), I chose aluminium for its lightness as a cast metal. It was important to dematerialise the surface of the aluminium to give a lead-like appearance and this was achieved by the application of soldering flux, with heat, to the surface of the forms. This colour, texture and appearance harmoniously extended the fence posts. Conceptually, I wanted the work to suggest an association with the harmful properties of lead-like/fungi elements.

Some of the smaller cast forms in this sculpture for Mildura aroused my interest in simple, free-formed rather than precise, geometrical shapes: circles, ellipses, triangles and squares. Because of my growing interest in these in the context of environments, I began to look for literature which may have explored man's use, structurally, of such forms. One important reference I discovered was <u>Primitive Architecture</u> by Enrico Guidoni (Abrams Artbooks Series, 1978. ISBN 0-8109-1026-8). This inspiring book comprehensively illustrates primitive dwellings - structurally constructed from trees - and includes examples of simple geometry in the layout of kraals and other cluster dwellings. These images of simple but imaginative constructions by primitive peoples have had a strong impact on my subsequent thinking, emotions and interests and have been a further important influence on the conceptual background to my work

The transition from this back once again to the local landscape of the Mt Stromlo pine forest reinforced my interest in free-formed geometric shapes as a basis for both the proposed glass elements as well as the main sculptural forms. I found the Mt Stromlo landscape, recently logged after fire the previous summer, to have in its upheaval and disturbance a constant repetition of these geometrical shapes.

The random relationships occuring in the geometrical formations of logged trees, space the the earth were dramatic and contributed further to the conceptual basis for the use of glass as a material in this proposed series of sculptures, the basic element of which was the 'unseen' structure of trees. The shapes would relate broadly to the growth rings of trees and to the geometrical formations of the logged area. A non-vessel or solid form, rough-textured and plain-coloured (grey, clear or natural), light-reflecting aesthetic became the dominant thought for glass.

STEPS IN THE GLASS CASTING PROCESS

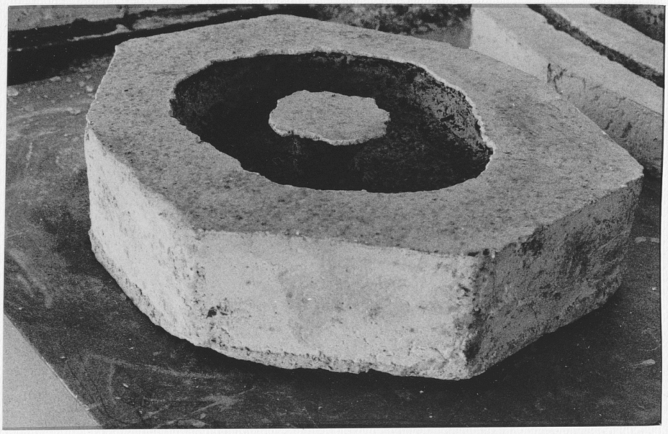
1. The problem of finding a suitable mould formulae for glass casting was overcome when a copy of a reprint, Martin Hunt, 'A Refractory Mould for Kiln-Firing Glass', Royal College of Art, London, was supplied by Michael Esson during a visit to the Canberra School of Art. The amounts of materials specified in this reprint were increased by fifty times to provide the maximum scale possible:

Plaster	5 Kilos
Silica Powder	5 "
China Clay	1 "
Fibre-Frax	1 "
Paper	1 "
Water	8½ Litres

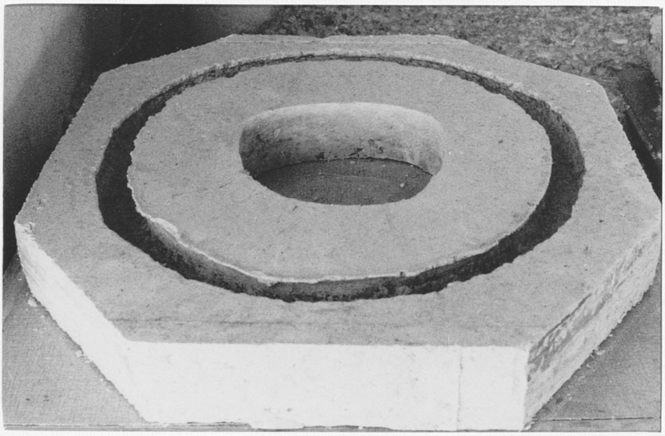
2. The special equipment built for blending these larger quantities of mould formulae, together with the support structures built for inside the kiln, are illustrated in the accompanying photographs.

3. The next main problem in the casting process was to determine the correct annealing times for the sizes of forms proposed in glass. A set of detailed working drawings of each mould (four: ellipse, circle, triangle and square (see attached photos)), plus the details

Blender

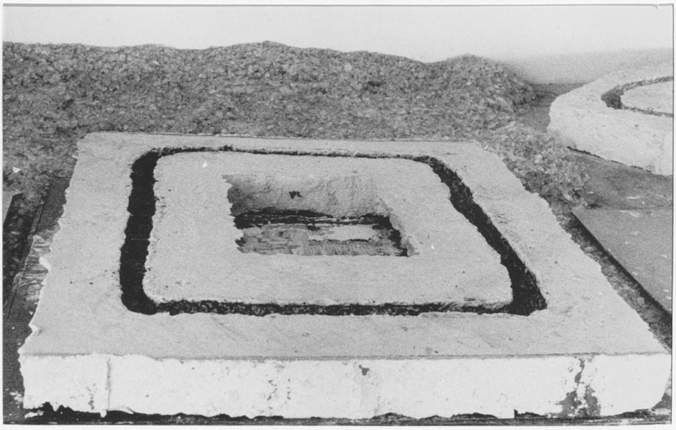


Ellipse mould



Circle mould

Triangle mould



Square mould

and dimensions of the material to be used inside the kiln as support structures for feeding the glass to the moulds, was sent to Crown Corning Limited for mathematical calculations.

4. Tests were made in the meantime on the mould formulae to see whether or not this material might be suitable for metal casting. The results of these tests for both pre-firing and casting in these extremely moist moulds are outlined below:

Pre-firing - Aluminium

From 11.15 a.m., Day 1 until Noon, Day 2 at a kiln temperature setting of 800°C, unit rate of 100, this mould de-waxed and pre-fired. Late in the afternoon of Day 2 the molten aluminium was poured into the mould.

Pre-firing - Bronze

From 9.30 a.m., Day 1 until 2.00 p.m. Day 2, at a kiln temperature setting of 800°C, unit rate of 100, this mould de-waxed and pre-fired. The same approach as above was followed for bronze casting.

The wax melted out of these moulds at 400°C but during the pre-firing some of the wax was absorbed into the body of the mould mixture to a depth of 3-4 cm. Prolonged pre-firing (Day 1 - 2) burnt out this absorbed wax. After pre-firing the moulds became soft and powdery and were very fragile. They withstood the temperatures and flow of molten metal without collapsing despite several hairline cracks which developed during the pre-firing stage. The extreme heat retention of the moulds after casting did not appear to affect the cast metal. It was concluded that these moulds could be strengthened for metal casting by reinforcing with either chicken wire or fibre-glass at the half thickness stage.

A summary of the features of this experiment is provided below:

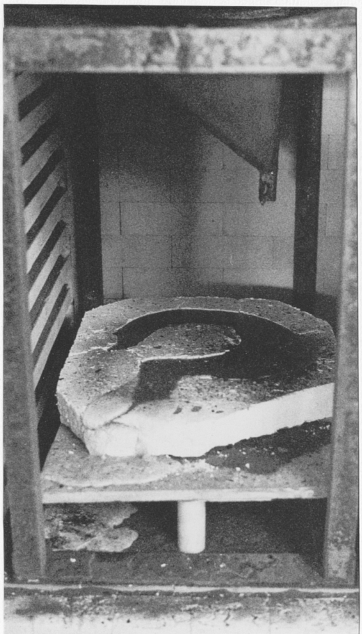
- successful pre-firing to 800°C
- suitable formulae as a waste-mould
- suitable for direct, relief, clay or wax model mould
- softness of mould allows easy removal from cast object
- withstands high temperatures (1200°C) and holds high temperatures for longer periods than ceramic shell moulds
- simple process, low cost

5. Crown Corning Limited forwarded the calculations and graphs of the annealing curves for the proposed glass forms (see Appendix) to be cast under the conditions which existed in the Sculpture Workshop. They advised that if we used the stainless steel funnel we had constructed then we could expect contamination of the glass. This would take the form of green colouration (iron oxide present in the stainless steel).

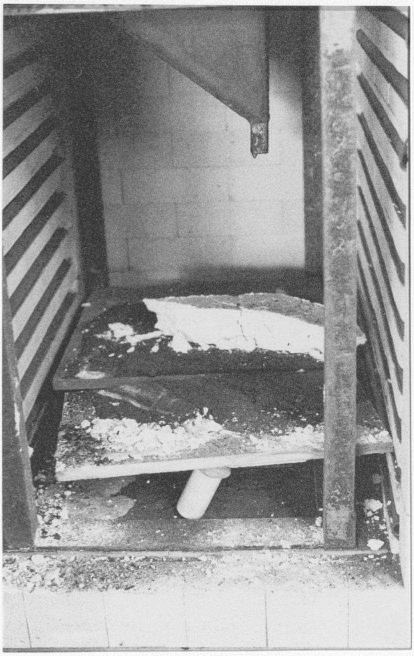
6. Because the first trial casting was to be made with a separate mould from those for which we had received annealing calculations, it was decided to go ahead with the equipment which had been prepared for the kiln, including the funnel, to see what effects the casting temperatures had. This first experiment was essentially a test-run of kiln temperature times. Details of the results are shown in the Appendix.

7. The glass form was removed from the kiln five days after the casting process began. It was tested at the Glass Workshop of the Research School of Chemistry, Australian National University, for stability and showed no significant stress areas despite the incorrect annealing temperatures. (See attached photographs.)

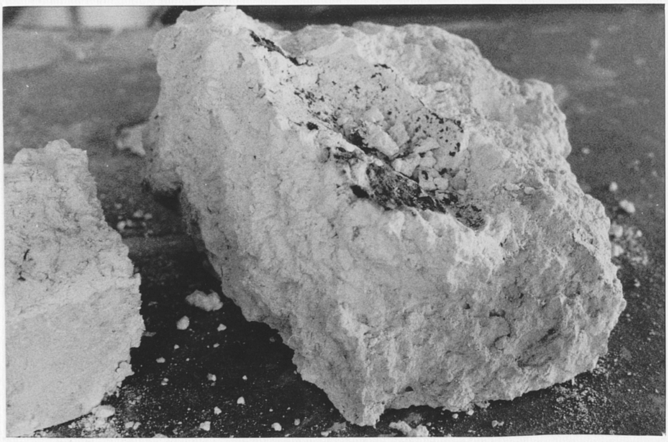
The glass surface had many small particles of clay baken on from the mould. These were a problem to remove and a solution of 50% hydrofluoric acid was applied in a fume hood to see if this freed the clay from the glass. This test raised the issue of the technology of acid etching, grinding and polishing cast glass to achieve a light-reflecting, clear surface. A sandblasting test



Kiln support structures;
cast glass.



cast glass



mould mixture

of the glass surface to remove the clay proved to be effective but intensified the translucent surface appearance. Suggestions for overcoming the problem of the clay in the remaining prepared moulds included the use of a kiln wash to act as a separator between the clay particles in the moulds and the melted glass entering the moulds. Graphite in solution was given as a sample kiln wash but this flaked off the mould when it dried. A further suggestion was a kiln wash of a different composition: 10% kalon and 90% zircon flour in solution. This was applied to the moulds but flaked off during pre-firing.

8. During this trial casting it became clear that the automatic electrical controls of the kiln would have to be altered. These were modified by adding a time-clock which could be manually set to maintain any temperature required for a 24 hour period. After considerable delay this clock was installed but when routine checks were made of this work it was discovered that a module was broken and that the kiln had been operating at only 60% capacity. A replacement potentiometer was ordered which further delayed the work of the glass casting.

9. The arrival of Klaus Moje to establish the new Glass Workshop at the School in July gave me the first opportunity to clarify many of the questions raised by the first trial casting in glass. During the following discussions it was suggested that a different approach could be taken with the remaining moulds to be cast:

. the glass cullet could be placed inside the pre-fired moulds;

. the glass cullet could be melted in a crucible and poured into the pre-fired moulds.

10. At the end of November when the final electrical work on the kiln was completed, the ellipse mould was prefired and the radical changes in the kiln temperatures from those of the first casting can be compared in the attached Appendix. This mould collapsed

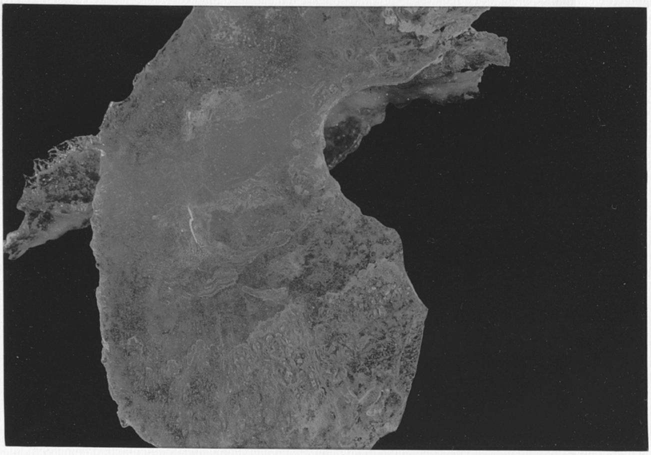
at some point during casting. The quality of the glass retrieved from the bottom of the kiln was excellent (see attached photographs). I think the very high temperatures - held overnight between Day 1 and 2 - were the cause of the mould collapsing.

11. To eliminate the possibility of the circle mould breaking, it was reinforced with fibre-glass applied with ceramic shell slurry (zircon flour, cyton, seaspen, comprox) before pre-firing. The temperature unit rate was reduced from the maximum (100 units) to 30 units to see if a slower rise in temperature to an even lower initial temperature of 800°C placed less stress on the mould. In five hours the kiln reached 800°C - theoretically a high enough temperature to melt the glass cullet which had been placed in the mould. The kiln was turned off to allow extra glass to be added in the hope of integrating the first batch of glass, now melted, with the second to give a full glass form within the negative space in the mould (for technical details see Appendix). This casting proved that it is impossible to integrate two batches of glass because of the scum on the surface of the first. The glass vitrified.

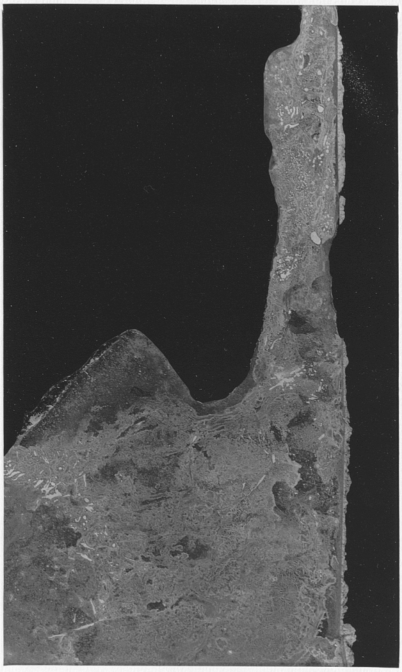
12. The triangle mould was reinforced and pre-fired. This mould was filled with cullet, and the relevant casting and annealing details are shown in the Appendix. The approach this time, on advice given, was to bring the temperature of the cullet to 900°C as quickly as possible and then to reduce the temperature to the annealing rate as soon as possible. Theoretically, this approach could avoid vitrification of the glass. Discussions have not made clear as to why this cast vitrified.

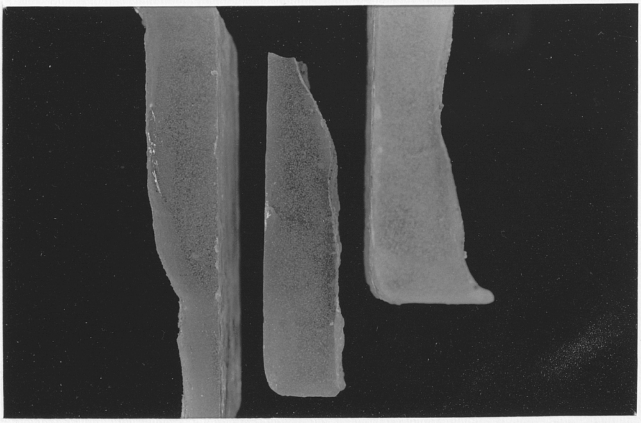
Discontinuation of Glass Casting Experiment

13. At this point in these experiments I thought it practical to choose between continuing to attempt to solve the major technical problems of glass casting or finish the sculptural forms I had begun and developed at the same time as the experiments in glass were being conducted (see Section B, p14). My decision was to



cast glass





complete the sculptures which meant omitting or substituting the intended glass elements. In one major sculpture, the scale of the work had developed beyond that which would have made it possible for integration with the glass even if I had satisfactorily cast the form and obtained the desired surface through the resources of industry.

My decision not to persevere with glass casting was based on my wish not to become diverted by technical problems to an extent which would prevent the development of my own sculptural work. As a sculptor, I believe that any material is a vehicle only for the expression of form and concept.

Summary

If the following problems could be overcome, I believe that cast glass could be a successful material for use in sculpture.

. scale

The glass elements are limited in scale to the inside measurements, minus mould thickness, of any kiln available for annealing. Should the precision of casting glass be developed to allow units of a form to be cast then this could, to some extent, break down this limitation.

. surface finish

One of the main disappointments from my point of view was the translucent surface of the cast glass. It has a visual affinity with resin but a greater visual weight. If a 'natural' or light-reflecting surface could be achieved through the application of the technology of etching, grinding, polishing or carving, I believe that cast glass, as a material for sculpture, could have great potential.

. form

The simple method of bar relief mould construction for glass casting gives a flat side to any cast form. If mould construction and a related glass feeder system for the kiln could be developed to allow a full three dimensional casting then the options for the use of glass would be greater.

B. COMPLETED SCULPTURES

<u>My Approach and Attitudes Towards Sculpture</u>

My approach to sculpture as a student has been to experiment with the possibilities of integrating materials as they have visually related to concept and form.

It has always been important for me to work from an idea which has invariably been the result of a particular visual stimulus rather than to work through the structural development of form alone.

Photography has often played an important part in these initial stages. Exploring an area of landscape photographically, for example, has helped me to objectify forms and to eliminate the superficial.

Once I become committed to developing shapes or forms from these investigations then the evolution of a sculpture takes place gradually as a result of informal experimentation with the shapes; this often involves substitution which allows progress to be made three-dimensionally. Once this process has been established then rough sketching can often help to catch many of the fleeting changes which occur as the exploration of possibilities goes on.

The physical connection of one element to another resolves many of the possibilities. What is often an exciting thought in the development of a sculpture proves to be a disappointing reality. On the other hand, many important changes in the progress of a sculpture can be through accidental associations of form. One example is: the processes of building a work involve me in propping up, extending, lifting or supporting elements and in doing this, new dimensions of form are introduced to a work which can often challenge my original intentions, redirect the emphasis or modify the whole concept.

I find that it is important also to allow a sculpture to stand for some time; I need to be able to walk past it without concentrating on its form until I understand its strengths and limitations. To be engaged with a work but detached for a time in this way is an essential part of the process of evaluating the choices which have been made:

. form, concept, materials
. energy versus contemplation
. harmony versus disquiet
. scale
. balance, etc.

The question of choice of intention or emphasis at the outset is less important in my view, than the recognition and apprehension of it through the reality of the completed work.

An awareness of the past and present work of other sculptors - through exhibitions and the literature - has often put into perspective for me some of the emotions of excitement, frustration, disappointment and compromise which are all part of developing my identity and basis for working as a sculptor.

Sources for Sculpture

The source of visual stimulus for all my work has been the landscape. The forms within my immediate environment which I view casually whilst walking or driving are often the basis for strong identification. The Monaro landscape with its many man-made environments such as quarries, mines and soil erosion gullies possess natural and industrial structures which have, for me, a strong element of anonymous sculpture. These places give me examples of the relationship between form, space and function and provide me with a rich experience from which to draw.

Visual stimuli from these sources are like building blocks. Sometimes different aspects of form are absorbed before their significance and potential are realised, as my earlier description of the growth of the concept for the Mildura sculpture illustrates.

Steps in the Development of Sculptures

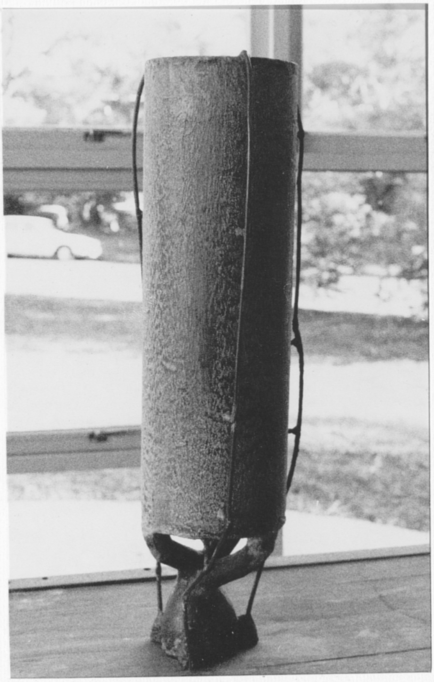
The practical organisation for developing the main sculptural forms in this year's program provided me with an opportunity for industrial shopping. Establishing the locations of suppliers of materials for sculpture and making my first purchases of equipment and materials, has been an important undertaking and a firm commitment in time, energy and money, to my own sculptural ideas. This experience has given me an increased professional and mental self-confidence.

Similarly, the tools I have purchased this year for carrying out the practical development of the sculptures have helped me to build a degree of independence from the facilities provided by the School.

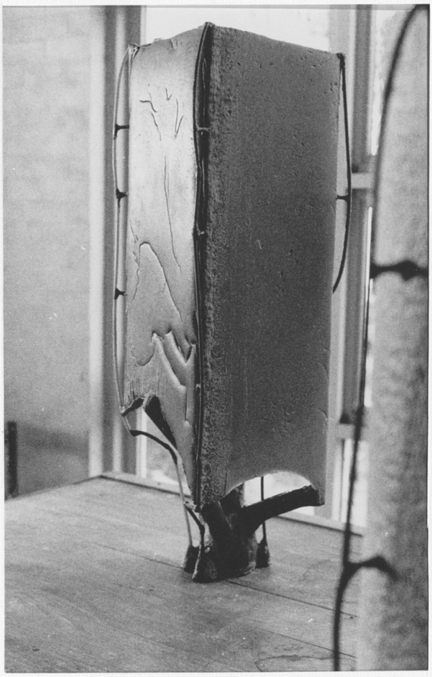
Sculptural Forms

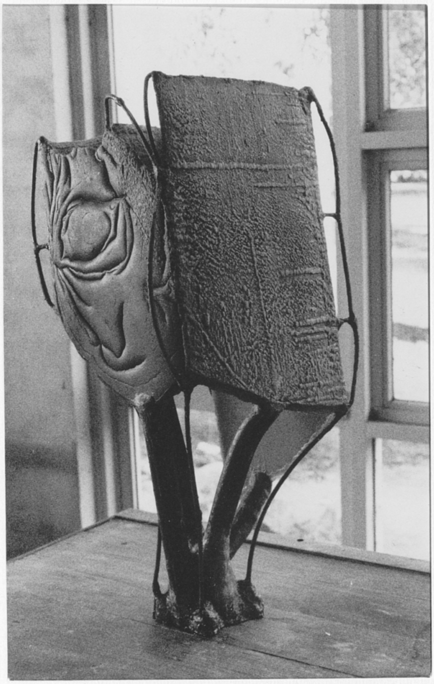
The major sculptural elements in my 1982 work (originally intended for integration with the glass) were constructed in wax (for bronze and aluminium casting); wood; metal and cement formwork. (See photographs of waxes prepared for casting.) The selection of materials for these elements was based on my wish to explore as many possibilities for integration as I thought could be realised. I conceived a visual harmony between the glass and these materials existing but until the different forms could be physically united, the true possibilities of their integration remained uncertain.

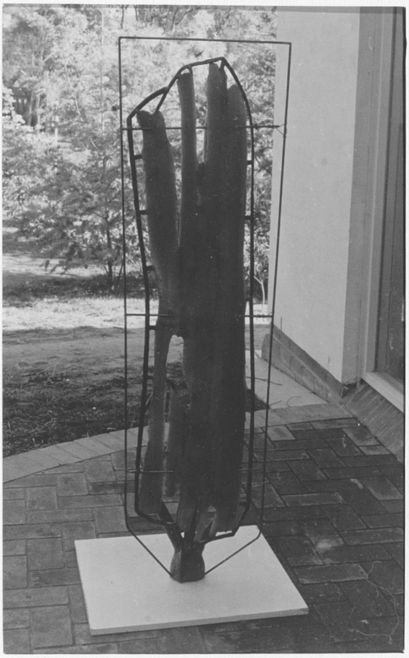
The conceptual approach for these main sculptural elements was to develop the recurring geometrical formations perceived in the logged area of the Mt Stromlo pine forest (see p.5, Section A)

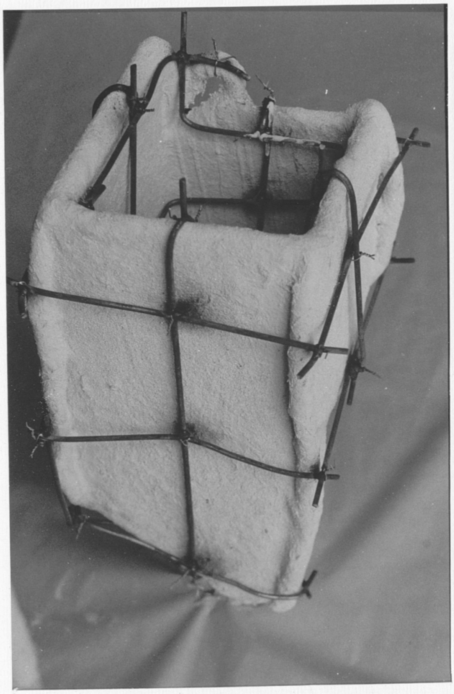


waxes ready for
casting

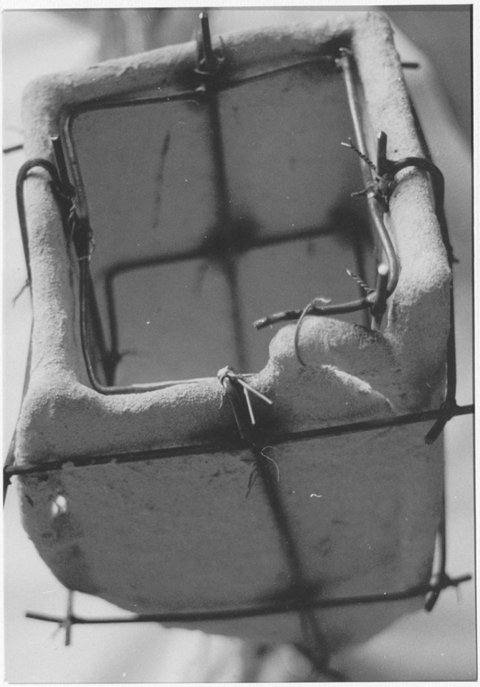


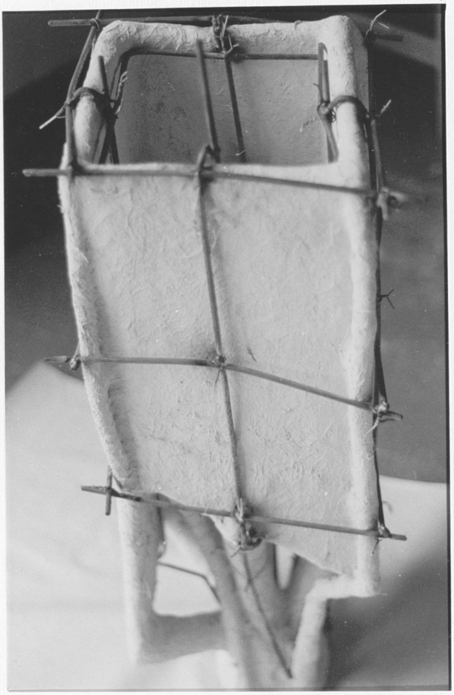


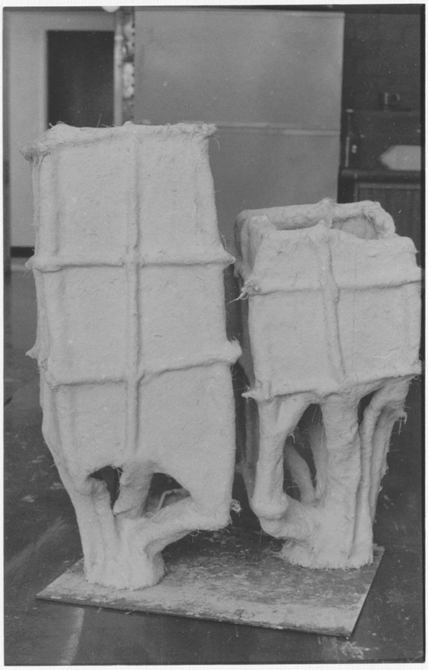


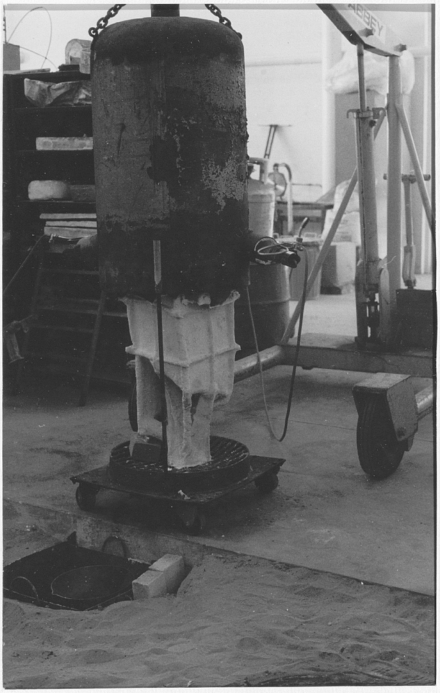


reinforced moulds








ABBEY

and to imply in each sculpture aspects of that activity and environment with which I had become so familiar.

The scale of these forms was developed without the glass elements as a visual reference (because of the delays and difficulties with the kiln). The policy I adopted was to construct options some of which would inevitably be discarded once the process of physically connecting forms began.

The technical processes of each new sculpture always sets fresh problems and develops a new learning platform. In the early stages of developing these forms, materials I used for the first time, for example, concrete, gave me a greater appreciation of the structural weight/mass and surface problems of the concrete sculptures of Picasso, as illustrated in the recent book by Sally Fairweather, Picasso's Concrete Sculptures, Hudson Hills Press, New York, 1982, ISBN 0-933920-28-8. As well, the many large-scale environmental works throughout the United States and those categorised as 'Sculpture as Architecture' in the publication by Margaret A. Robinette, Outdoor Sculpture, Whitney Library of Design, N.Y. (Watson Guptill Publications), 1976.

Steel construction had not previously been a part of the processes of my work. It became important for its strength in supporting the wooden structures and cast aluminium form I had made. The continued use of my own oxy/acetylene equipment for developing the forms in this area of my work enabled me to improve my skills in welding.

PARTICULARS OF SCULPTURES COMPLETED

My decision to discontinue with the glass casting process (see pp. 10, 11, Section A) allowed me a freedom of scale for the resolution of the elements of the sculptures I had been developing throughout the year. In some cases I had cast, as options, alternative forms in aluminium and bronze of the geometric shapes proposed in glass (see construction 2 (log)). In construction 1 (gate), I substituted a steel form for the proposed glass element. In the resolution of the other works, these alternatives to the original glass forms were omitted.

Construction 1 (gate)

. Materials: metal, wood, bronze
. Dimensions: H: 148 cm; L: 322 cm; W: 218 cm

The first elements to be developed in this work were the wooden constructions with metal bands. I had originally intended to make circular, vertical constructions but a limited amount of silver birch prevented this. Instead I found it necessary to utilise the number of planks which could be cut from the solid trunk sections of this silver birch tree. The outline, or edges, of the planks as they were cut became very important. I have tried to contrast these edges (smooth) with the evidence of the cutting process of each plank (rough). As the work developed, the grid system of one element changed, retaining the vertical elements in the context of a gate. The contour maps attached to the gate break the spatial structure and reinforce the forms of the wooden constructions. The extruded steel form was modified to support these wooden structures. The perspective elements (steel pipe) were important for both the support of the extruded steel form as well as for the context of 'passage' and visual perspective of horizontal forms.

I have attempted to modify the more formal considerations of this work by the use of the organic elements which assert the context of the form.

Technically, the balance of this work has been a great worry due to the disproportionate weight of the extruded steel element which structurally supports the relatively heavy forms in wood. These elements are counterbalanced only by the light steel pipe.

Conceptually it incorporates many of the visions I have of the Mt Stromlo forest: gates, grids, roads, large forms viewed in perspective and an awareness of the area as a whole. My own feeling about this work is that it has exploited its possibilities fully. By this I mean that this sculpture gives me no further stimulus for sculptural development.

<u>Construction 2 (log)</u>

- Materials: metal, cast aluminium
- Dimensions: H: 46 cm; L: 300 cm; W: 80 cm

This sculpture has changed dramatically from the original direction in the work. Resolving it involved discarding the concrete elements I had made and starting again.

I had seen the cast aluminium shape as a cut log. The top edge changed as a result of the casting process and was developed with both the form of the metal in mind as well as the concept of edges of form against space. The rigidity of the steel element transporting the log is contrasted with the free-formed geometric shapes (see p.5, Section A) as well as by the organic edges of the log itself. The use of the ground plane in this work has extended by thinking about sculptural resolution.

<u>Construction 3 (bark)</u>

- Materials: bronze
- Dimensions: H: 47 cm; L:80 cm; W: 77 cm

This work was one of the early sculptures developed in my post-graduate year and one which, because of its rich texture, could not have been successfully integrated with the glass element as I first intended. The two bronze geometric shapes which were cast as alternatives to the glass were visually superfluous. This work has not changed except for its position as form in relation to the ground plane rather than as form in a vertical plane. However, I believe that an ideal installation for this work would be to elevate it by the use of a slight embankment (approximately 30°) but without any formal element of support.

Established techniques were used for constructing this sculpture. However, the scale of this work was larger than I had previously cast. During the mould building processes it was necessary to reinforce the ceramic shell inside and out with steel rod to prevent the form of the bronze from buckling (see attached photographs). With 84 kilos of bronze in the larger of these two forms and 54 kilos in the other, these extra processes considerably extended my knowledge of metal casting.

Conceptually, I wished to suggest in this work the functional isolation of bark as a material.

Construction 4 (building with trees)

. Materials: metal, hardwood, cement, bark
. Dimensions: H: 340 cm; L: 400 cm; W: 240 cm

This work is linked with my interest in primitive architecture but more closely relates to the suburban environment. In particular, this sculpture has given me ideas for future sculptures which I find very exciting, and which will extend my present interests and activities considerably. It is the last work to be constructed and I am therefore unable to analyse objectively the various elements at this stage. However, I sense that the use of concrete in this work relates both in appearance, and in aspects of visual ambiguity, to the Mildura sculpture: Woman and Fence Posts.

Woman and Fence Posts

. Materials: fence posts, cast aluminium, soil
. Dimensions: installation: L: 11 metres; W: 8 metres

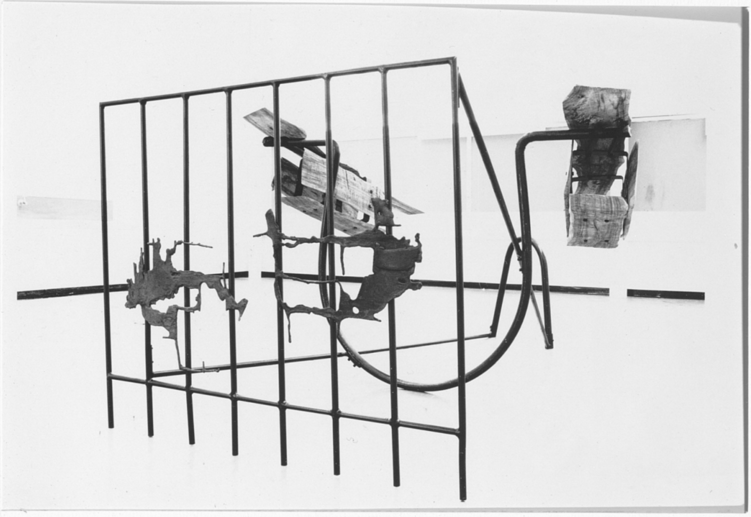
This work was exhibited at the 8th Sculpture Triennial, Mildura, April 1982 (Artnetwork, 7, 1982); (see p.3, Section A). In presenting this work for the first time in Canberra modifications have been made to some of the elements to accommodate the different space and location dimensions. As well, because of the condition of the fence posts, damage has inevitably occurred in the dismantling and transportation of the work from Mildura and it has been necessary to replace two elements.

CONCLUSION

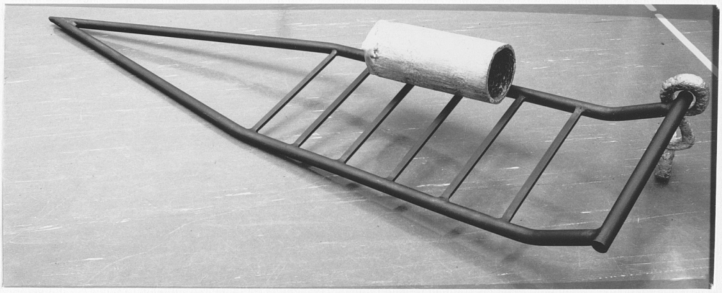
The range of visual results achieved in the sculptures developed during my postgraduate year may be seen as experimental in terms of both style and materials. I see a continuity of the conceptual framework of the present work as well as continued use of wood and metal as materials for future sculptures. In the sculptures which will continue this series, I also hope to explore as a structural basis triangular and circular forms as I have the oblong in the present works.

The technical problems I have encountered during this year have considerably extended my sculptural experience. Because of the increased scale of the works I have completed, the structural use in them of steel, wood and concrete, together with the responsibility of exploring glass casting as a concurrent project, I believe my level of technical competence has developed significantly.

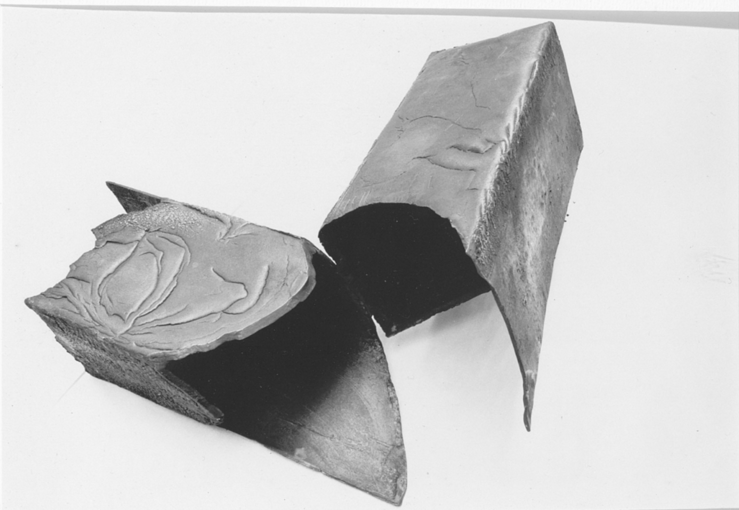
At the same time the experience of working at postgraduate level has, I believe, given me a growing sophistication in linking conceptual background to the resolution of sculptural forms as my sculptures and the associated two dimensional material illustrate. (See attached photographs.)



Construction 1 (gate)



Construction 2 (log)



Construction 3 (back)

Construction 4 (building with trees)

Woman and Fence Posts

APPENDIX

<u>Details of kiln temperature test-run and glass casting</u>

. Day 1

1.30 p.m. Temperature setting switched to 1200°C x unit rate of 40
2.00 p.m. " reading 200°C
3.30 p.m. " " 280°C
9.00 p.m. " " 520°C

. Day 2

9.30 a.m. " " 800°C
10.30 a.m. unit rate of 100
11.00 a.m. " " 1100°C
11.30 a.m. Cycle complete; kiln's automatic shut-off has reduced temperature to 1000°C. Glass flow complete. Soak-time begun. Kiln re-set at 1200°C x unit rate of 5.
12.15 p.m. Temperature reading 900°C unit rate of 40
12.30 p.m. unit rate of 100
1.15 p.m. " " 1150°C unit rate of 30
1.30 p.m. " " 1100°C; kiln off, soak time complete.
Temperature to reduce to correct annealing at 480°C.**
2.30 p.m. " reading 1000°C
3.00 p.m. " " 1000°C
5.10 p.m. " " 800°C
6.30 p.m. " " 780°C
8.00 p.m. " " 700°C
9.30 p.m. " " 650°C
11.00 p.m. " 600°C

. Day 3

12.30 a.m. " " 540°C
1.30 a.m. " 520°C
1.45 a.m. " " 510°C
2.00 a.m. " " 500°C; kiln reset for annealing times 600°C x unit rate of 30. A higher setting was required so that the kiln would not automatically shut off. It was decided at this stage to allow the kiln to drop after reaching this last setting and to then cool to 0°.

. Day 4

9.00 a.m. Temperature reading 370°C

.Day 5

9.30 a.m. " " 100°C
4.00 p.m. " " 50°C

**Crown Corning advised me to allow the temperature to drop gradually and not to open the kiln door.

APPENDIX (continued)

Details of ellipse mould casting

. Day 1

3.00 p.m.	Temperature setting switched to 1000°C x unit rate of 100
4.00 p.m.	" reading 800°C
4.30 p.m.	" " 900°C
5.00 p m.	" " 1000°C

. Day 2

8.30 a.m.	Temperature setting switched to 475°C for annealing (see graph attached)
6.00 p.m.	Temperature reading 475°C

. Day 3 Temperature maintained

. Day 4

10.30 a.m. kiln off, annealing complete.

Details of circle mould casting

. Day 1

10. 0 a.m.	Temperature setting switched to 800°C x unit rate of 30
4.30 p.m.	" reading 500°C
10.00 p.m.	" " 800°C; kiln off

. Day 2

9.30 a.m.	Mould topped up with glass.
	Temperature setting switched to 1000°C x unit rate of 50
2.00 p.m.	" reading 700°C
9.00 p.m.	" " 900°C
9.30 p.m.	" " 1000°C;
	Temperature setting reduced to 480°C for annealing (see graph attached)

. Day 3 Temperature maintained;
Annealing times complete; kiln off.

APPENDIX (continued)

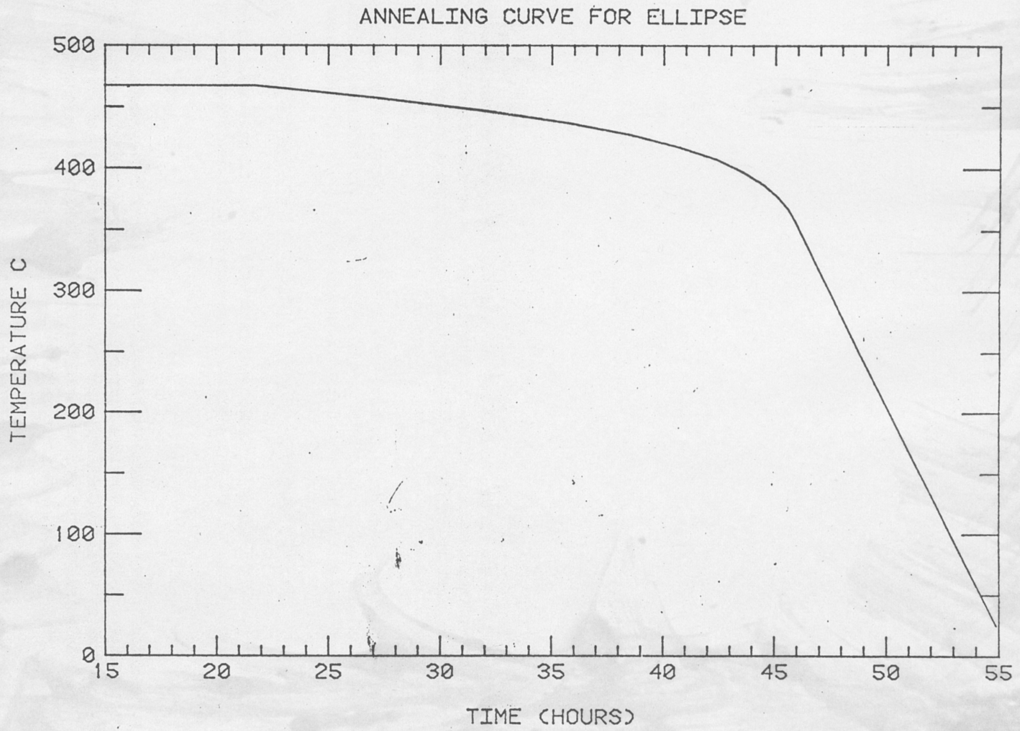
Details of Triangle mould casting

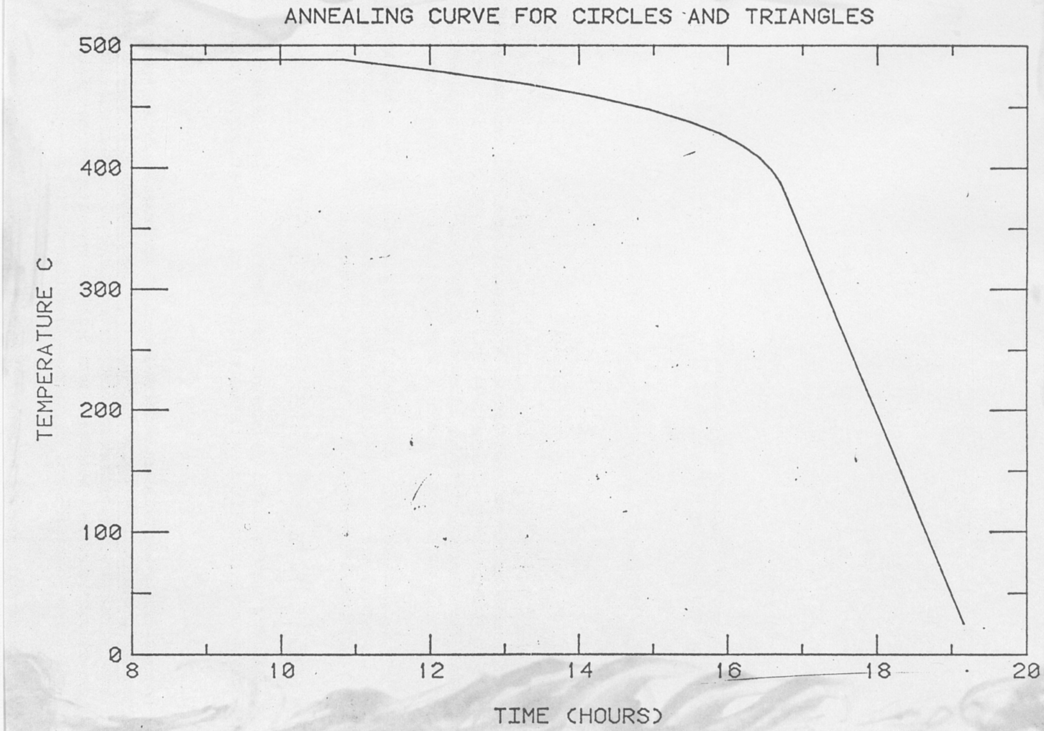
. Day 1

11.00 a.m.	Temperature setting switched to 900°C x unit rate of 100
3.30 p.m.	" reading 900°C;
	Temperature reduced to 480°C for annealing
	(see graph)
6.00 p.m.	Temperature reading 480°C

. Day 2

10.00 a.m.	" " 450°C
Noon	" " 400°C
3.00 p.m.	Kiln off.


ANNEALING CURVE FOR ELLIPSE
TEMPERATURE C
0
100
200
300
400
500
15
20
25
30
35
40
45
50
55
TIME (HOURS)


ANNEALING CURVE FOR CIRCLES AND TRIANGLES
500
400
300
200
100
0
TEMPERATURE C
8
10
12
14
16
18
20
TIME (HOURS)